

RESEARCH

at the Space Vehicles and Directed Energy Directorates is broad and varied:

At the **ALBUQUERQUE, NEW MEXICO** location, topics include:

- Space Electronics
- Molecular Electronics
- Composite Materials for Space Structures
- On-Orbit Energy Storage Technologies
- Spacecraft Dynamics & Controls
- Spectral-Polarimetry for Space-Based Surveillance
- Flywheel Systems for Attitude Control and Energy Storage
- Photovoltaics Technology for Space Power
- Advanced Composite Structures Analysis and Design
- Advanced Laser Concepts
- Modeling and Simulation for High Energy Lasers and High Power Microwaves
- Adaptive Optics
- High Power Microwave Sources
- Plasma Physics
- Laser Material Interactions

At the **BEDFORD, MASSACHUSETTS** location, topics include:

- Space Infrared Emission
- Ionosphere Climatology
- Ion-Enhanced Combustion of Jet Fuels
- Space Weather

At the **SUNSPOT, NEW MEXICO** location topics include:

- Analysis of Solar Corona
- Improved Solar Observing Optical Network
- Solar Mass Ejection Imaging

At the **MAUI, HAWAII** location, topics include:

- Advanced Astrodynamics and Non-imaging Techniques for Space Surveillance
- High-Performance Computing for Scientific Applications



Cheryl-Annette Kincaid, University of North Texas masters student, explains the procedures for data processing from AFRL's Solar Mass Ejection Imager instrument aboard the Coriolis spacecraft.



Space Scholar Leslie Sasa, a PhD candidate from UCLA, polishes graphite nano-platelet composites prior to inspecting the samples under a scanning electron microscope to determine platelet alignment and dispersion within the laminate.



Space Vehicles Directorate Space Scholars

SPACE SCHOLARS and DIRECTED ENERGY SCHOLARS

Looking for an *exciting, challenging summer experience?*

Here is an opportunity in *space science and engineering and directed energy* you cannot afford to miss!



SPACE VEHICLES DIRECTORATE and
DIRECTED ENERGY DIRECTORATE
AIR FORCE RESEARCH LABORATORY

THE SCHOLARS PROGRAM

PURPOSE

Space and Directed Energy Scholars participate in a unique summer program that could lead to full-time employment working to satisfy current and future Air Force space and directed energy technology needs.

PROGRAM

The Space and Directed Energy Scholars Program offers select students opportunities to conduct specific research which is mentored by nationally recognized science and engineering experts.

Descriptions of current research topics appear on our web sites, and applicants are encouraged to contact listed mentors specializing in the student's particular area of interest.

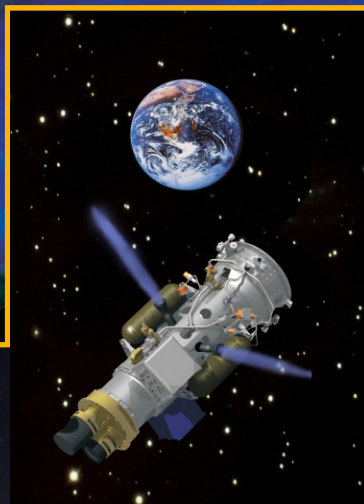
Successful applicants will research novel projects designed to advance national military space and directed energy technology and science. Students are also encouraged to co-author an article—based on their summer research—for submittal to a refereed scientific journal or conference.

Motivated undergraduate juniors and seniors, masters and doctoral students with top academic credentials in scientific and engineering fields are invited to apply. Outstanding letters of reference are required. Only US citizens are eligible.

AFRL is an equal opportunity employer.

is conducted by the Air Force Research Laboratory's Space Vehicles and Directed Energy Directorates, which has major facilities at Kirtland Air Force Base, Albuquerque, New Mexico; Hanscom Air Force Base, Bedford, Massachusetts; the National Solar Observatory in Sunspot, New Mexico; and the Air Force Maui Optical and Super Computing Center in Maui, Hawaii.

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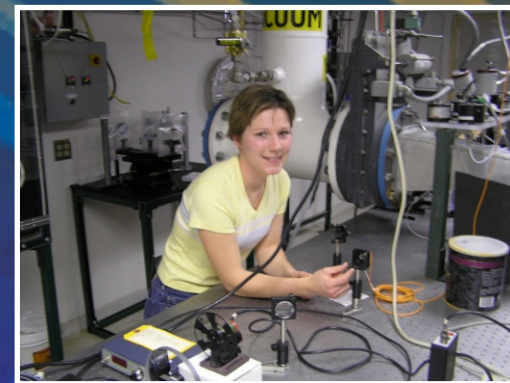


3-Beam
Starfire
Optical
Range

Application materials and information regarding additional research topics can be obtained on our web sites:

[Http://www.vs.afrl.af.mil/SpaceScholars/](http://www.vs.afrl.af.mil/SpaceScholars/)

[Http://www.de.afrl.af.mil/Scholars/](http://www.de.afrl.af.mil/Scholars/)



DE Scholar from the University of Michigan, Carrie Noren, now working at DE and pursuing a PhD at the University of New Mexico is shown aligning optics in the Planar Laser Induced Fluorescence lab.

During the end-of-the year poster session, Dr. Stephen Chu, a visiting Nobel Laureate from Stanford University, listens to PhD candidate Cole Corbin also from Stanford University as he discusses his research results on Composite Flywheel Technology Development.



With other Space Scholars, Phil Farias, UCLA masters student, discusses how to best use experimental input-output data to develop dynamic models for a space-based telescope concept. The dynamic models are to be used for control system design and analysis for the telescope.